CLAIMS

1. Use of a microorganism and/or a metabolite thereof in the manufacture of a medicament for use in increasing the amount of a COX-1 mRNA in a cell.

2. Use according to claim 1, wherein the microorganism and/or the metabolite thereof modifies the amount of a further cyclooxygenase mRNA in said cell.

3. Use according to claim 1 or claim 2, wherein the microorganism and/or the metabolite thereof increases the amount of a COX-1 mRNA in said cell, whilst simultaneously decreasing the amount of a COX-2 mRNA in said cell.

4. Use of a microorganism and/or a metabolite thereof capable of increasing at least the amount of a COX-1 mRNA in a cell, in the manufacture of a medicament for use in the prevention and/or treatment of one or more of the following: a dermatological disorder or disease; cancers of the gastrointestinal tract; inflammatory intestinal problems and diseases; trauma of intestinal mucosa; enteropathies; recovery from surgery and skin wounds; diarrhea; nephropathies; arteriosclerosis; hypertension; liver damage; autoimmune diseases; aging; fatigue; glomerulonephritis; infectious diseases caused by pathogenic microorganisms; alopecia areata; conjunctivitis; keratitis; gastric ulcers; ischemic bowel disease; necrotizing enterocolitis; intestinal lesions; Coeliac diseases; proctitis; anemia; sarcoidosis; fibroid lung; idiopathic interstitial pneumonia; chronic rheumatoid arthritis; multiple sclerosis; Alzheimer's disease; anorexia; migraine, arthritis deformans; asthma; hay fever; periodontal diseases; urogenital diseases; respiratory disorders and endotoxic shock.

5. Use of a microorganism and/or a metabolite thereof capable of increasing at least the amount of a COX-1 mRNA in a cell, in the manufacture of a medicament for use in increasing the tolerance of a subject to immunomodulating agents and/or anti-inflammatory drugs and/or increasing the tolerance of a subject to antibiotic agents.

6. Use of a microorganism and/or a metabolite thereof capable of increasing at least the amount of a COX-1 mRNA in a cell, in the manufacture of a medicament for use in the prevention and/or treatment of a side effect associated with nonsteroidal anti-inflammatory drugs.

7. Use according to any one of the preceding claims wherein the amount of a COX-1 mRNA in said cell is increased 2-fold compared with an untreated cell.

8. Use according to any one of the preceding claims wherein the microorganism is a bacterium.

9. Use according to any one of the preceding claims wherein the microorganism is from the genus B*ifidobacterium*.

10. Use according to claim 9 wherein the microorganism is one or more of: *Bifidobacterium* sp. 420, *Bifidobacterium lactis, Bifidobacterium longum, Bifidobacterium breve, Bifidobacterium animalis*.

11. Use according to any one of claims 1-10 wherein the microorganism and/or metabolite thereof is used in combination with i) betaine or a pharmaceutically acceptable salt thereof or a betaine replacement compound and/or ii) a nonsteroidal anti-inflammatory drug.

12. A pharmaceutical preparation comprising in combination a nonsteroidal anti-inflammatory drug and a microorganism and/or a metabolite thereof, which microorganism and/or metabolite thereof is capable of at least increasing the amount of a COX-1 mRNA in a cell.

13. A pharmaceutical preparation according to claim 12 wherein the microorganism is a bacterium.

14. A pharmaceutical preparation according to claim 12 or claim 13 wherein the microorganism is from the genus B*ifidobacterium*.

15. A pharmaceutical preparation according to claim 14 wherein the microorganism is one or more of: *Bifidobacterium* sp. 420, *Bifidobacterium lactis, Bifidobacterium longum, Bifidobacterium breve, Bifidobacterium animalis.*

16. A pharmaceutical preparation according to any one of claims 12 to 15 wherein said preparation further comprises betaine or a pharmaceutically acceptable salt thereof, or a betaine replacement compound.

17. A method of treating decreased COX-1 gene expression in a subject in need of treatment, which method comprises administering to said subject an effective amount of a microorganism and/or a metabolite thereof, which microorganism and/or metabolite thereof at least increases the amount of a COX-1 mRNA in at least one cell of the subject.

18. A method of treating a disease, disorder or condition in a subject in need of treatment, which method comprises administering to said subject an effective amount of a microorganism and/or a metabolite thereof, which microorganism and/or metabolite thereof at least increases the amount of a COX-1 mRNA in at least one cell of the subject.

19. A method according to claim 18, wherein the disorder, disease or condition may be one or more of the following: a dermatological disorder or disease; cancers of the gastrointestinal tract; inflammatory intestinal problems and diseases; trauma of intestinal mucosa; enteropathies; recovery from surgery and skin wounds; diarrhoea; nephropathies; arteriosclerosis; hypertension; liver damage; autoimmune diseases; aging; fatigue; glomerulonephritis; infectious diseases caused by pathogenic microorganisms; alopecia areata; conjunctivitis; keratitis; gastric ulcers; ischemic bowel disease; necrotizing enterocolitis; intestinal lesions; Coeliac diseases; proctitis; anemia; sarcoidosis; fibroid lung; idiopathic interstitial pneumonia; chronic

rheumatoid arthritis; multiple sclerosis; Alzheimer's disease; anorexia; migraine, arthritis deformans; asthma; hay fever; periodontal diseases; urogenital diseases; respiratory disorders and endotoxic shock.

20. A method of preventing and/or treating of reduced weight gain in livestock, preferably poultry, preferably chickens, which method comprises administering to said subject an effective amount of a microorganism and/or a metabolite thereof, which microorganism and/or metabolite thereof at least increases the amount of a COX-1 mRNA in at least one cell of the subject.

21. A method of improving the health of a subject, which method comprises administering to said subject an effective amount of a microorganism and/or metabolite thereof, which microorganism and/or metabolite thereof at least increases the amount of a COX-1 mRNA in at least one cell of the subject.

22. A method of treating and/or preventing the side-effects associated with the administration of nonsteroidal anti-inflammatory drugs, which method comprises administering to the patient an effective amount of a microorganism and/or a metabolite thereof, which microorganism and/or metabolite thereof at least increases the amount of a COX-1 mRNA in at least one cell of the subject.

23. A method according to any one of claims 17-22, wherein the microorganism and/or the metabolite thereof modifies the amount of a further cyclooxygenase mRNA in said cell.

24. A method according to any one of claims 17-23, wherein the microorganism and/or the metabolite thereof increases the amount of a COX-1 mRNA in said cell, whilst simultaneously decreases the amount of a COX-2 mRNA in said cell.

25. A method according to any one of claims 17-24 wherein the microorganism is a bacterium.

26. A method according to any one of claims 17-25 wherein the microorganism is from the genus B*ifidobacterium.*

27. A method according to any one of claims 17-26 wherein the microorganism is one or more of: *Bifidobacterium* sp. 420, *Bifidobacterium lactis, Bifidobacterium longum, Bifidobacterium breve, Bifidobacterium animalis.*

28. A method according to any one of claims 15 to 27 wherein the subject is further administered with an effective amount of betaine or a pharmaceutically acceptable salt thereof or a betaine replacement compound.

29. A pharmaceutical pack comprising one or more compartments, wherein at least one compartment comprises one or more microorganism and/or metabolites thereof, which microorganism and/or metabolite thereof is capable of at least increasing the amount of a COX-1 mRNA in at least one cell of a subject, and the same or a further compartment comprises one or more non-steroidal anti-inflammatory drugs.

30. A pack according to claim 29 wherein the microorganism is a bacterium.

31. A pack according to claim 29 or claim 30 wherein the microorganism is from the genus B*ifidobacterium.*

32. A pack according to any one of claims 29 to 31 wherein the microorganism is one or more of: *Bifidobacterium* sp. 420, *Bifidobacterium lactis, Bifidobacterium longum, Bifidobacterium breve, Bifidobacterium animalis.*

33. A pack according to any one of claims 29-32 wherein at least one compartment comprises betaine or a pharmaceutically acceptable salt thereof or a betaine replacement compound.

34. A process of preparation of a pharmaceutical composition said process comprising admixing one or more microorganisms and/or metabolites thereof, which

microorganism and/or metabolite thereof is capable of at least increasing the amount of a COX-1 mRNA in at least one cell of a subject, with one or more nonsteroidal anti-inflammatory drugs, and with a pharmaceutically acceptable diluent, excipient or carrier.

35. A process according to claim 34 wherein the process further comprising admixing with betaine or a pharmaceutically active salt thereof or a betaine replacement compound.

36. A pharmaceutical preparation comprising in combination a microorganism and/or a metabolite thereof and betaine or a pharmaceutically acceptable salt thereof or a betaine replacement compound, which microorganism and/or metabolite thereof is capable of at least increasing the amount of a COX-1 mRNA in a cell.

37. A pharmaceutical preparation according to claim 36 wherein the microorganism is a bacterium.

38. A pharmaceutical preparation according to claim 36 or claim 37 wherein the microorganism is from the genus B*ifidobacterium*.

39. A pharmaceutical preparation according to claim 38 wherein the microorganism is one or more of: *Bifidobacterium* sp. 420, *Bifidobacterium lactis*, *Bifidobacterium longum*, *Bifidobacterium breve*, *Bifidobacterium animalis*.